REMARKS

Reconsideration and withdrawal of the rejections of the application are respectfully requested in view of the remarks herewith, which place the application into condition for allowance.

Applicants note that the Office Action failed to indicate, presumably as an oversight, that claim 15 is currently pending in this application. Appropriate correction is requested.

I. STATUS OF CLAIMS AND FORMAL MATTERS

Claims 1-4, 7, 8, 10-12 and 15-18 are pending. No new matter is added.

It is submitted that these claims are patentably distinct from the prior art cited by the Examiner, and that these claims are in full compliance with the requirements of 35 U.S.C. §112. The remarks made herein are not for the purpose of patentability within the meaning of 35 U.S.C. §§ 101, 102, 103 or 112; but rather the remarks are made simply for clarification and to round out the scope of protection to which Applicants are entitled.

II. 35 U.S.C. § 103 REJECTIONS

Claims 1-4, 7, 8, 10-12 and 16-18 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 6,022,902 to Koontz et al. in view of U.S. Patent No. 5,770,722 to Lockhart et al. Applicants disagree.

The instantly claimed invention is directed to a process for immobilizing nucleic acid molecules on a substrate by treating the substrate with atomic oxygen plasma prior to the immobilization. The substrate is a single crystal surface or an amorphous surface selected from the group consisting of silicon oxides, aluminum oxides, sapphire, perovskites, and derivatives and stabilized and/or doped derivatives thereof. The Koontz and Lockhart patents, either alone

or in combination, fail to teach, suggest or motivate a skilled artisan to practice such an invention.

The Koontz patent relates to a method for introducing functionality onto the interstitial surface of a porous article. The porous article, however, is at least partially *organic*. More specifically, column 4, lines 50-61, states that:

> Porous articles useful in the invention are formed, in whole or part, of organic polymer, i.e., carbon and hydrogen containing polymers. Preferably, the porous article is formed entirely from organic polymer. However, the porous article may be a composite of inorganic material and organic polymer. When the porous article is a composite, then at least some of the surface of the article is formed of organic polymer, and preferably at least some of the bulk matrix is formed of the same organic polymer. A preferred composite article has a surface that is entirely formed of organic polymer, and more preferably has a bulk matrix that is predominately organic polymer.

The patent further explains that hydrogen atoms, which are part of the basic structure of the porous article, are replaced with oxygen or nitrogen atoms in order to form hydroxyl, carbonyl, carboxylic acid or amino groups. (Col. 16, lines 2-6).

In other words, the Koontz patent is directed to *organic* substrates. The instant invention, by contrast, is directed to *inorganic* substrates lacking carbon and hydrogen atoms. More specifically, the instantly claimed substrate is a single crystal surface or an amorphous surface selected from the group consisting of silicon oxides, aluminum oxides, sapphire, perovskites, and derivatives and stabilized and/or doped derivatives thereof. Koontz does not teach or suggest a process for immobilizing nucleic acid on such substrates.

The Lockhart patent does not remedy the inherent deficiencies in Koontz. Lockhart relates to libraries of unimolecular, double-stranded oligonucleotides on a solid support. The solid supports, however, require chemical treatment. More specifically, column 8, line 54, to

column 9, line 49, explains that the solid support has a spacer L^1 linked to an oligonucleotide via a 3'-hydroxyl group on the oligonucleotide and a functional group on L^1, thereby resulting in the formation of a number of linkages. The formation of the linkages, however, requires activation by, for example, phosphoramidite-activated nucleotides. One skilled in the art, therefore, would read Lockhart as requiring specific chemical treatments on the solid supports. This contrasts with the instant invention, which is directed to a process for immobilizing nucleic acid molecules on an oxygen plasma-treated substrate.

Following the Examiner's reasoning, the combination of the Koontz and Lockhart patents would lead a skilled artisan to practice oligonucleotides on a chemically-treated, partially organic substrate. Applicants' invention is clearly patentably distinguishable from such a combination.

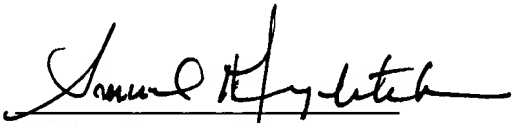
It is well-settled that "obvious to try" is not the standard upon which an obviousness rejection should be based. *See In re Fine*. And as "obvious to try" would be the only standard that would lend the Section 103 rejection any viability, the rejection must fail as a matter of law. Therefore, applying the law to the instant facts, the rejection is fatally defective and should be removed.

Consequently, reconsideration and withdrawal of the Section 103 rejection are believed to be in order and such actions are respectfully requested.

CONCLUSION

By this Response, claims 1-4, 7, 8, 10-12 and 15-18 should be allowed; and this application is in condition for allowance. Favorable reconsideration of the application, withdrawal of the rejections, and prompt issuance of the Notice of Allowance are, therefore, all earnestly solicited.

Respectfully submitted,
FROMMER LAWRENCE & HAUG LLP

By: 

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